



**Department of  
Environmental Protection  
Bureau of Land & Water Quality August 2002**

**O&M Newsletter**

**A monthly newsletter for wastewater discharge licensees, treatment facility operators and associated persons**

## **Vulnerability Self Assessment Tool (VSAT)**

The Vulnerability Self-Assessment Software Tool (VSAT?), is now available, this tool provides a comprehensive, intuitive system for wastewater utilities seeking to analyze their vulnerability to both intentional threats and natural disasters. This software tool includes reference libraries of both potential threats and countermeasures, and provides a method for managing the information generated by security vulnerability assessments.

Developed by the Association of Metropolitan Sewerage Agencies, (AMSA) - in collaboration with PA Consulting Group and SCIENTECH, Inc. ? the software is available free of charge to all public wastewater utilities.

Visit AMSA at [www.amsa-cleanwater.org/about/about.cfm](http://www.amsa-cleanwater.org/about/about.cfm) to request a copy of the VSAT? wastewater software. For technical assistance regarding this software please visit [www.VSATusers.net](http://www.VSATusers.net) or call 1-888-340-8830.

## **Fall 2002 Exam**

The Fall, 2002 wastewater operator certification exam will be given at the usual locations on November 13, 2002. Applications must be postmarked by September 28, 2002 or delivered to our office by September 30, 2002 to enroll for the exam.

## **Reporting of Non-compliance Events**

As much as no one wants it to happen, sometimes things go wrong. For a wastewater treatment facility, this may mean spills, bypasses or effluent violations. When such events happen, you must take immediate steps to address the situation and meet certain reporting requirements. Reports are required by the standard conditions of permits, Chapter 523 (2)(1)(6) of DEP's rules and 40 CFR 122.41(1)(6). There are three ways to report an incident, depending on the circumstances; however, all non-compliance events must be reported. The methods are immediate verbal reporting, a 5-day written notice and a cover letter provided with Discharge Monitoring Reports (DMRs). The first two must both be done when an incident represents a significant deviation from permit conditions or the discharge of pollutants that may be a potential risk to health or the environment. Typically, these are significant effluent quality violations; major equipment failures and all spills or bypasses other than permitted combined sewer overflows. All municipal dry

weather overflows must be reported, including those that do not reach surface waters. The third method, cover letters with monitoring reports may be used for effluent exceedences that do not present an immediate health or environmental risks. When in doubt, operators should err on the side of caution and call with a verbal report.

### **Who to contact**

In all cases, your assigned DEP inspector should be contacted. While Maine was authorized to administer the NPDES program for most of the State in January 2001, some facilities still operate under a NPDES permit issued by EPA in Boston, in addition to a Maine Waste Discharge License. If your facility falls into this category, reports must also be made to EPA, Region I. The contact person there is Joan Serra, Water Technical Unit (SEW), US Environmental Protection Agency, 1 Congress Street, Suite 1100, Boston, MA 02114-2023. Joan's telephone number is 617-918-1881.

### **When an event occurs**

The first consideration is always to protect public and worker health and safety. Issues here include risks from toxic chemicals, fire, infection, dangerous gases, etc. The next priority is to prevent or stop discharges to the environment. Steps should always be taken to mitigate environmental impacts by containing spills, increasing stream flows or issuing public warnings. It is always appropriate to consult with the DEP about mitigating spills, since sometimes the "fix" can create other risks. For example, adding another chemical to counteract a spilled material may cause as many problems as the original spill.

### **Verbal reports**

When calling in an incident, please do so as soon as possible and be prepared to provide as much information as available at that time. This need not be complete and additional information can be developed later and be included in written reports. Normally, all spills of non-hazardous materials and problems with the operation of a treatment facility should be called in to the DEP inspector assigned to your facility. If a hazardous substance is involved, or if any pollutant poses an immediate threat to health, safety or the environment, the incident must be reported through the Department of Public Safety's 24-hour response number, 1-800-452-4664 (or 1-800-482-0777 for oil spills). All incidents involving hazardous substances must be reported immediately unless otherwise specified in your facility's approved SPCC plan.

### **Written reports**

All incidents of non-compliance must be reported in writing, even if a phone call was made. This is to be done within 5 days, unless the incident involves an effluent exceedance that does not present a risk for direct environmental impact, when reports may be included with DMRs. All written reports must fully describe the event and impacts by including the following.

- A general description of the incident with times, locations, circumstances, events, etc.;
- The volume, composition and strength of the spill or discharge;
- As needed, the method or basis for estimating the flow. (In some cases, the volume spilled may differ from that discharged, and both amounts should be included.)
- The steps taken to stop, mitigate or contain the discharge;
- The steps taken or proposed to prevent the problem, or similar ones,

from occurring again. As needed, an implementation schedule should be included;

- The results of laboratory tests done to characterize the discharge by analyzing for all-important pollutants suspected to be present. (If you are unable to obtain a sample, estimates may be based on tests of materials or waste streams that are representative of the spill); and
- Evaluations of any receiving water impacts. Visual observations for color, turbidity, floating solids, dead fish, etc. are always important. As the size and nature of the discharge dictate, dissolved oxygen, pH, temperature bacteria or other chemicals must be tested. Evaluations must be made not only at the point of discharge but also downstream where impacts may occur.

The DEP has non-compliance incident forms to be used for making reports, and these are available from your facility inspector. Letters containing all the same information may also be used. When the situation allows, photographs or digital images are very helpful to supplement written descriptions.

DEP regards the reporting of non-compliance as a critically important element of our programs to protect Maine's waters, and expects full compliance with reporting requirements in permits. If you have any questions regarding reporting obligations, please contact your facility's inspector. Remember: when it doubt, call it in!

***Dennis Merrill***

## **For Practice**

1. Which of the following wastewater characteristics cannot be easily monitored on a continuous basis?
  - a. BOD
  - b. Temperature
  - c. pH
  - d. ORP
2. Part of the required maintenance for capillary or liquid thermometers includes checking for:
  - a. corrosion
  - b. high fluid level
  - c. loose connections
  - d. leaks
3. Before making a final decision, all information pertaining to the situation should be:
  - a. analyzed.
  - b. discussed with everyone in the plant.
  - c. written down on an approved form.
  - d. none of the above.
4. The wastewater treatment process which has a low F:M ratio and a hydraulic detention time of more than 12 hours is called:
  - a. conventional activated sludge.
  - b. contact stabilization.
  - c. extended aeration.
  - e. trickling filter.

## **Energy in Wastewater Treatment Facilities**

Our Energy article in this *O&M News* is the first of two focusing on alternative energy sources. This month, we talk about wind energy, solar thermal energy and solar photovoltaic energy. Next month, we'll discuss hydropower and micro turbines.

As the world population continues to grow, so does our need for energy, and all power sources impact the natural environment in one way or another? Some are sources of air pollution; others present waste, water or land issues. Currently, most of our energy is from fossil fuels (coal, oil, and natural gas), which are limited, non-renewable and create air pollution. For the most part, renewable energy (sun, wind, water, biomass, and geothermal) is produced without a large amount of air emissions and are virtually inexhaustible. However, the construction and maintenance of both renewable and non-renewable power plants may impact land, water and the surrounding environment.

Restructuring of the electric utility industry gives consumers the choice of who generates their electricity. Renewable energy typically costs more to produce, but with more consumer support, the costs of renewable power should go down. You can affect the availability and affordability of renewable energy by choosing an energy supplier who is more environmentally responsible.

### **Net Metering**

Net metering programs allow the electric meters of customers with generating facilities to turn backwards when their generators are producing more energy than the customers' demand. Net metering allows customers to use their generation to offset their consumption over the entire billing period, not just instantaneously. This offset would enable customers with generating facilities to receive retail prices for more of the electricity they generate. Net metering is a simple and low-cost method to encourage direct customer investment in renewable energy technologies. The renewable energy industry supports net metering because it removes an economic disincentive for

potential customers by increasing the value of the electricity generated by renewable energy technologies. Environmental groups support net metering because it promotes clean energy production.

Although generating electricity onsite from a renewable source is generally higher than for fossil fuels, when coupled with financing opportunities such as grants, discounts, and low interest loans, these sources can be affordable. Below are descriptions of some renewable and less polluting energy sources and possible uses at wastewater treatment facilities. For more information on energy efficiency and renewable energy contact the Department of Energy at [www.eren.doe.gov](http://www.eren.doe.gov), or, <http://erecbbs.nciinc.com>.

### **Wind**

Early windmills of the 1800s produced mechanical energy to pump water or run saw mills. Today, wind energy may be used to generate electricity directly, power mechanical systems, or reduce a facility's energy costs when sold to a utility. Many utilities, such as Green Mountain Power Service in Vermont, have windfarms to generate electricity. Wind energy is currently cost effective for electricity generation only where the annual average wind speed is at least 12 mph. However, many municipal wastewater treatment facilities are located in windy areas, such as a valley, the coastline, where wind may be a potential energy source.

For lagoon treatment systems that use surface aerators, it is possible to use the wind to directly power mechanical surface aerators to relieve existing aerators powered by the utility. The minimum wind speed for these systems is only 4 mph. The New Hampshire Department of Environmental Services (DES) is working with a community to demonstrate the effectiveness of wind powered surface mechanical aerators in a wastewater stabilization pond to save energy. The project is partially funded

by a grant from the Governor's Office of Energy and Community Service. It began during the summer of 2000 and expects to last two years.

An alternative to using the wind to directly power a facility is to sell the wind generated energy to your utility to defray energy costs and continue to use the utility's power to operate the facility.

## **Solar**

A variety of technologies have been developed to take advantage of solar energy (energy from the sun). Two major technologies are solar heating and cooling of buildings and photovoltaic conversion (converting sunlight into electricity).

### **Solar Heating and Cooling**

Facilities that have good southerly exposures can take advantage of the sun's energy. There are a few examples of wastewater facilities in New England using solar energy for heating.

One facility in New Hampshire uses a *solar wall* to help with its heating needs. The solar wall is based on simple passive solar heating principles. The system works by heating air with a south-facing solar collector—a dark-colored wall made with an energy absorbing material. As the sun strikes the collector hot air begins rising in the space between the solar wall. The heated air vents through the top of the wall and is distributed into the building. As heated air vents from the top of the wall, the cooler room air returns to the collector through vents near the bottom. The temperature is regulated by a thermostat, which controls the vents at the top of the wall. Any additional heating needed at night or on cloudy days is supplied by the building's conventional heating system. During summer months, the sun is reflected off the collectors to prevent overheating.

A solar wall can be designed as an integral part of a new building or it can be added in a retrofit project. Expenses are usually minimal, because a solar collector requires little mechanical equipment.

## **Photovoltaic**

Photovoltaic (PV) systems present many possibilities and are the most versatile. PV systems became popular through the space program and are the primary source of power for satellites. PV cells have no moving parts, are easy to install, require little maintenance, do not emit air pollutants, and have a life span of up to twenty years. Because PV systems only work when the sun is shining, most systems are used in combination with batteries. Although the capital cost of PV systems has come down substantially, it is still high, and, except in certain circumstances, is not competitive with conventional grid power. Some instances where PV can be the better choice of power are:

- \* Power line extensions, even for short distances, will not be cost-effective considering the low loads to be carried;
- \* The remote location makes the costs or difficulty of transporting and storing diesel fuel prohibitive;
- \* Electrical needs are small, seasonal or remote.

Other industries have found applications where solar energy makes economic sense, such as, operating pumps for irrigation, air and water heating, and outdoor security lighting. Some of these applications may also have possible uses at wastewater facilities. Some state agencies and utilities provide financial assistance for renewable energy projects.

### Answers to *For Practice*:

1. a Temperature, pH and ORP can all be measured accurately with electronic probes that can give instantaneous and continuous readings. BOD requires a laboratory procedure and incubation of the samples for five days.
2. d Capillary thermometers rely on the expansion a contraction of a fixed amount of liquid to display the temperature. If some of the liquid leaks from the device, the readings will be inaccurate.
3. a In the decision making process it is necessary to analyze all available information that affects the decision. It is not always possible or necessary to discuss the information with everyone in the plant. Also, it is not always possible or necessary to write all the information down before making a decision.
4. c Conventional Activated Sludge systems have an F: M ratio of 0.2 to 0.5 and a hydraulic detention time of 4 to 8 hours.  
Contact Stabilization systems have an F: M ratio of 0.2 to 0.6 and a hydraulic detention time of 0.5 to 1.0 hour.  
Extended Aeration systems have an F:M ratio of 0.02 to 0.10 and a hydraulic detention time of 18 to 30 hours.  
Trickling filters are not suspended growth treatment systems and do not have an F: M ratio.

### **NEWEA/NEIWPCC/USEPA Security and Emergency Preparedness Workshops for Wastewater Facilities**

The New England Water Environment Association (NEWEA) and the New England Interstate Water Pollution Control Commission (NEIWPCC), in conjunction with the U.S. Environmental Protection Agency (EPA) - New England, are pleased to announce eight one-day security training workshops in the New England area for POTWs. The workshops will focus on emergency preparedness and security in the wastewater industry and are geared toward small and large systems alike. The workshops will feature regional experts who will advise on the importance of protecting a community's wastewater treatment facility. Assessing the vulnerability of a facility and collection system is the first step POTWs can take to protect their municipality's investment. The importance of developing an emergency response and communication plan will also be reviewed.

These workshops are being offered in cooperation with the following State Agencies:

Connecticut Dept. of Environmental Protection  
Maine Dept. of Environmental Protection  
Massachusetts Dept. of Environmental Protection  
New Hampshire Dept. of Environmental Services  
Rhode Island Dept. of Environmental Management  
Vermont Dept. of Environmental Conservation

## **WORKSHOP INFORMATION**

### **Eight Sessions / 8:00 AM - 3:30 PM**

Tuesday, June 25, 2002 - Warwick, RI  
Wednesday, July 17, 2002 - Chelmsford, MA

Tuesday, July 30, 2002 - Concord, NH  
Tuesday, August 13, 2002 - Portland, ME

Tuesday, August 27, 2002 - Waterbury, VT,  
Tuesday, September 17, 2002 - Hartford, CT

Wednesday, September 25, 2002 - Brewer, ME,  
Tuesday, October 8, 2002 - Springfield, MA

(Dates and locations subject to change)

Emergency preparedness is a necessity for all our Regional POTWs. To address the need for emergency response planning and general security awareness, EPA, in cooperation with NEWEA and NEIWPC, has planned eight workshops across New England to specifically meet the needs of small and large treatment plants alike.

- How safe is your wastewater facility and collection system?
- How secure is your chemical storage?
- How prepared is your community in the event of an emergency, act of nature, or terrorism?
- Does your plant have an Emergency Response Plan?
- How can you better assess your system's vulnerability?

- What steps can be taken to increase system security and level of preparedness?
- How can you work with your community to make the necessary improvements to your plant?

The security of wastewater utilities does warrant attention. Natural disasters, potential chemical hazards for plant security, and/or malicious introduction of flammable or explosive materials into wastewater collection systems could cause significant damage to the wastewater infrastructure and surrounding environment. Impairment of wastewater treatment could introduce high levels of contaminants that adversely affects overall water quality and downstream drinking supplies. Are you aware of the economic and environmental impacts of such an event? Do you know what resources are available to your community?

### **Who should attend?**

Representatives of Small, Medium, and Large Communities  
Municipal Officials, Town Managers, Wastewater Treatment Plant Operators, Consulting Engineers, Department of Public Works, Emergency Responders, Plant Superintendents

## AGENDA

8:00AM - 8:30AM	<b>REGISTRATION</b>
8:30AM - 8:45AM	<b>Introduction - Opening Remarks - US EPA New England</b>
8:45AM - 9:45AM	<b>General Security Overview for POTWs</b> - John T. Doherty, P.E. - CDM, Cambridge, MA - Fundamental principles of assessing a municipality's vulnerability and identifying steps to help prevent potential threats.
9:45AM - 10:00AM	Break
10:00 AM - 10:45 AM	<b>Emergency Response and Planning for Wastewater Facilities</b> - Justin Pimpare and Len Wallace, U.S. EPA <ul style="list-style-type: none"><li>• Applicable requirements</li><li>• Essential components of emergency operating/response plans</li><li>• Available guidance to develop and update plan</li></ul>
10:45AM - 11:45AM	<b>Panel Discussion</b> - Panel to include, but not limited to: representative of a local POTW, municipal official, media relations professional, emergency response personnel, collection systems personnel, state environmental agency representative, local emergency planning committee representative, state Emergency Management Agency (EMA) representative*
11:45AM - 12:00 Noon	<b>Questions &amp; Answers</b> with AM speakers
12:00 Noon - 1:00 PM	<b>Lunch</b> - Provided
1:00 PM - 1:45PM	<b>Identifying and Assessing Vulnerability</b> - Charles Conway, NEIWPCC
1:45PM - 2:30PM	<b>Vulnerability Assessment/Case Study</b> - A case study and/or examples of POTW vulnerability risks will be presented.
2:30PM - 2:45PM	<b>Resources Available</b> - EPA New England and State Environmental Agency to provide update on available resources (tools for POTW operators and update on potential funding sources)
2:45PM - 3:15PM	<b>Questions &amp; Answers</b> - with PM speakers
3:15PM - 3:30PM	<b>Next Steps</b> - NEIWPCC, NEWEA, EPA New England
3:30PM	<b>Adjourn</b>

For more information, Contact:

NEWEA at (781) 939-0908 or email: [mail@newea.org](mailto:mail@newea.org)

NEIWPCC at (978) 323-7929 or email: [training@neiwpcc.org](mailto:training@neiwpcc.org)



## UPCOMING TRAINING COURSES

September 6, 2002 in Brunswick, ME -  
Practical Chemistry for Wastewater  
Treatment – Sponsored by MWRA, (207)  
729-6569 – Approved for 3 hours.

\*\*\*\*\*

September 10, 2002 in Millinocket, ME -  
BOD & TSS Test Procedures – Sponsored  
by MWRA, (207) 729-6569 – Approved for  
6 hours.

\*\*\*\*\*

September 11, 2002 in Brewer, ME - Pump  
Station Maintenance & Diesel Generator  
Maintenance – Sponsored by MWRA, (207)  
729-6569 – Approved for 6 hours.

\*\*\*\*\*

September 11, 2002 in Brunswick, ME -  
Collection Systems Certification Review –  
Sponsored by MWRA, (207) 729-6569 –  
Approved for 5 hours.

\*\*\*\*\*

September 12, 2002 in Presque Isle, ME -  
Pump Station Maintenance & Diesel  
Generator Maintenance – Sponsored by  
MWRA, (207) 729-6569 – Approved for 6  
hours.

\*\*\*\*\*

September 12, 2002 in Old Orchard Beach,  
ME - Fall Protection: A MUST Program –  
Sponsored by MWRA, (207) 729-6569 –  
Approved for 4 hours.

\*\*\*\*\*

September 17&24, October 1,8&15,2002 in  
Bangor, ME – Distribution Certification  
Prep Course – – Sponsored by MWRA,  
(207) 729-6569 – Approved for 9 hours.  
(Note: there are sections of this course that  
deal with topics common to water and  
wastewater. Wastewater operators will  
receive credit for sections that deal with  
those common topics.)

\*\*\*\*\*

September 24, 2002 in East Vassalboro, ME  
- Fall Protection: A MUST Program –  
Sponsored by MWRA, (207) 729-6569 –  
Approved for 4 hours.

\*\*\*\*\*

September 25, 2002 in Portland, ME –  
Security and Emergency Preparedness  
Workshop for Wastewater Facilities –  
Sponsored by EPA/NEIWPCC/NEWEA,  
(978) 322-7929 – Approved for 6 hours.

\*\*\*\*\*

September 26, 2002 in Portland, ME – Wet  
Weather Flow Management Plan  
Development – Sponsored by MeDEP, (207)  
287-9031 – Approved for 6 hours.

\*\*\*\*\*

October 1, 2002 in Bangor, ME – Wet  
Weather Flow Management Plan  
Development – Sponsored by MeDEP, (207)  
287-9031 – Approved for 6 hours.

\*\*\*\*\*

October 2, 2002 in Bangor, ME - Fall  
Protection: A MUST Program – Sponsored  
by MWRA, (207) 729-6569 – Approved for  
4 hours.

\*\*\*\*\*

October 2, 2002 in Presque Isle, ME – Wet  
Weather Flow Management Plan  
Development – Sponsored by MeDEP, (207)  
287-9031 – Approved for 6 hours.

\*\*\*\*\*

October 3, 2002 in Houlton, ME - Confined  
Space Entry: Alternate Procedures c5,  
Reclassification c7 & Rescue and  
Emergency Services - A MUST Program –  
Sponsored by MWRA, (207) 729-6569 –  
Approved for 4 hours.

\*\*\*\*\*

October 10, 2002 in Bangor, ME – O&M  
and Troubleshooting RBC Systems –  
Sponsored by JETCC, (207) 253-8020 –  
Approved for 6 hours.

\*\*\*\*\*

October 16&17, 2002 in Presque Isle, ME –  
North Country Convention – Sponsored by  
JETCC, (207) 253-8020 – Approved for up  
to 12 hours.

\*\*\*\*\*

October 17, 2002 in Portland, ME –  
Pumping Hydraulics for Water &  
Wastewater Operators – Sponsored by  
JETCC, (207) 253-8020 – Approved for 6  
hours.

\*\*\*\*\*

October 23, 2002 in Thomaston, ME –  
Operation of Lagoons Systems – Sponsored  
by JETCC, (207) 253-8020 – Approved for  
6 hours.

\*\*\*\*\*

October 23, 2002 in Augusta, ME -  
Wastewater Treatment Certification Review  
Class IV & V – Sponsored by MWRA,  
(207) 729-6569 – Approved for 6 hours.

\*\*\*\*\*

October 24, 2002 in Presque Isle, ME -  
Wastewater Treatment Certification Review  
Class I - III – Sponsored by MWRA, (207)  
729-6569 – Approved for 6 hours.

\*\*\*\*\*

October 24, 2002 in Old Orchard Beach,  
ME – QA/QC for Wastewater Laboratories  
– Sponsored by MWRA, (207) 729-6569 –  
Approved for 5 hours.

\*\*\*\*\*

October 29, 2002 in East Vassalboro, ME -  
Backflow Prevention Devices:  
Troubleshooting & Repairs – Sponsored by  
MWRA, (207) 729-6569 – Approved for 3.5  
hours.

\*\*\*\*\*

October 29, 2002 in Norway, ME - Effective  
Safety & Health Programming in the  
Utilities Industry: A MUST Program –  
Sponsored by MWRA, (207) 729-6569 –  
Approved for 4 hours.

\*\*\*\*\*

October 29&30, November 6&7, 2002 in  
Rockland, ME - NPDES Laboratory  
Procedures (4) days' course – Sponsored by  
MWRA, (207) 729-6569 – Approved for 16  
hours.

\*\*\*\*\*

October 30, 2002 in Presque, ME -  
Wastewater Treatment Certification Review  
Class IV & V – Sponsored by MWRA,  
(207) 729-6569 – Approved for 6 hours.

\*\*\*\*\*

October 30, 2002 in Topsham, ME -  
Backflow Prevention Devices:  
Troubleshooting & Repairs – Sponsored by  
MWRA, (207) 729-6569 – Approved for 3.5  
hours.

\*\*\*\*\*

October 30, 2002 in Livermore Falls, ME -  
Effective Safety & Health Programming in  
the Utilities Industry: A MUST Program –  
Sponsored by MWRA, (207) 729-6569 –  
Approved for 4 hours.

\*\*\*\*\*

October 31, 2002 in Augusta, ME -  
Wastewater Treatment Certification Review  
Class I - III – Sponsored by MWRA, (207)  
729-6569 – Approved for 6 hours.

\*\*\*\*\*

October 31, 2002 in York, ME - Backflow  
Prevention Devices: Troubleshooting &  
Repairs – Sponsored by MWRA, (207) 729-  
6569 – Approved for 3.5 hours.

\*\*\*\*\*

November 4,5&6, 2002 in Brewer, ME –  
Wastewater Collection System &  
NEWEA Voluntary Certification Exam  
– Sponsored by NEIWPEC, (978) 323-  
7929 – Approved for 13 hours.

\*\*\*\*\*

November 6, 2002 in Bangor, ME -  
Backflow Prevention Devices:  
Troubleshooting & Repairs – Sponsored by  
MWRA, (207) 729-6569 – Approved for 3.5  
hours.

\*\*\*\*\*

November 7, 2002 in Houlton, ME -  
Backflow Prevention Devices:  
Troubleshooting & Repairs – Sponsored by  
MWRA, (207) 729-6569 – Approved for 3.5  
hours.

\*\*\*\*\*

November 19, 2002 in Ellsworth, ME –  
QA/QC for your Laboratory Equipment &  
Establishing a Laboratory QA/QC Program -  
Sponsored by JETCC, (207) 253-8020 –  
Approved for 6 hours.

\*\*\*\*\*

November 21, 2002 in Augusta, ME –  
Biological Nutrient Removal – Sponsored  
by JETCC, (207) 253-8020 – Approved for  
6 hours.

\*\*\*\*\*

December 3&4, 2002 in Freeport, ME -  
MRWA Annual Conference – Sponsored by  
MWRA, (207) 729-6569 – Approved for  
TBA hours.

\*\*\*\*\*

December 4, 2002 in Livermore Falls - ME  
Polymer Sealants for use in Water &  
Wastewater Facilities along with ORP & pH  
Consideration - Sponsored by JETCC, (207)  
253-8020 – Approved for 6 hours.

\*\*\*\*\*

December 10, 2002 in North Vassalboro -  
Advanced use of Databases for Water &  
Wastewater Operators  
- Sponsored by JETCC, (207) 253-8020 –  
Approved for 6 hours.